

ABSTRACT

A device for magnetically enhanced sputtering and plasma deposition includes a plasma source unit and a work piece processing unit in which an anode space and a processing chamber are located in direct communication with each other. Sputtering and reactive gases are provided through an inlet of the processing chamber holding the work piece. Pulsed electric discharges are produced between the magnetron sputtering cathode and the anode, including walls of the anode space. A stationary magnetic mirror trap is provided in the combined vessel by an anode coil surrounding the anode space and another coil mounted at the processing chamber remote from the cathode. A plasma can then flow into the processing chamber suitable for reactive deposition on three-dimensional and large work pieces. A chemisorption filter including filter plates is arranged in the anode space for preventing penetration of the reactive gas into the region at the cathode. The other coil can be included in a plasma source similar to the first one, both plasma sources connected to the same work piece processing unit.